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EDITED BY WATSON DAVIS

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EDWIN E. SLOSSON, Director
WATSON DAVIS, Managing Editor

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AMERICAN DISCOVERY LEAVES ONLY TWO ELEMENTS UNKNOWN

Hail to illinium, chemical element number 61, first to be born on American soil.

For Prof. B. S. Hopkins of the University of Illinois has isolated the hitherto unknown element 61 after detailed chemical work extending over several years.

Four hundred pounds of monazite residues, donated by one of the big manufacturers of gas mantles, yielded the new element only after this quantity of rare earth material had been subjected to repeated fractional crystallization. Prof. Hopkins found it extremely difficult to separate the new element, illinium, from neodymium, another element, which masked its presence.

From theoretical considerations, physicists and chemists have predicted just what spectral flags, as it were, the new element should fly when it is detected with spectroscope and X-ray. And Prof. Hopkins bases his claim of discovery on many new lines in the spectrum, prominent bands in the absorption spectrum in the expected position and lines in the X-ray spectrum in the predicted position.

The element is named after the university at which it was discovered and its symbol will be the first two letters of its name, Il.

Little practical use for illinium can be predicted as it is just another of a large family of very closely related and much mixed up rare earths. Some of these rare earth elements make up the incandescent part of gas mantles in everyday use, and it is probable that small amounts of illinium are actually contained in such mantles.

Now all but two of the 92 fundamental materials of the universe, the chemical elements, have been discovered. The two still missing are numbered 85 and 87.

Efforts to locate element number 87, called prematally, ekacaesium have been made at Harvard by Prof. T. W. Richards and Dr. E. H. Archibald in 1902 and again by Prof. G. P. Baxter in 1915. All these experimenters made successive fractionations of caesium nitrate and other caesium salts. Element 87 is known to belong in the alkaline group along with sodium, potassium and caesium. Later attempts were made by Prof. L. M. Dennis and Dr. R. W. G. Wyckoff at Cornell University in 1919 fractionating caesium alum and caesium perchlorate obtained from the mineral pollucite. In all cases spectrum analysis of the final products of fractionation failed to yield any lines that could not be attributed to elements already known. These final products were also examined for signs of radioactivity with negative

results. Likewise in further studies of radioactive decomposition no evidence has been found for an element having the properties of an alkaline metal.

No work reported has been done in an attempt to isolate element 85 which when discovered will be in the same group with iodine.

MOST RECENT CHEMICAL ELEMENTS DISCOVERED

Number	Name	Discoverer	Country	Year
72	Hafnium	Coster and Hevesy	Denmark	1923
43	Masurium	Noddack	Germany	1925
75	(Rhenium	Noddack		
	Bohemium	Heyrovsky and Doleysek	Czecho-Slovakia	1925
61	Illinium	Hopkins	United States	1926
87	Ekacaesium	Undiscovered		
85	Unknown halogen	Undiscovered		

There are places for 92 chemical elements in the scheme of things as now conceived by the chemists. All but 87 and 85 have been filled. But some believe that there is a possibility that there may exist elements 93, 94, and 95, heavier than uranium, which is 92. Discovery of 75 is disputed.

UR EXCAVATORS DISCOVER TOMBS AND RARE GODDESS STATUE

The chance discovery of great coffins of hammered and riveted copper and the unearthing of the earliest female statue in all Mesopotamia are among the achievements of the Joint Expedition of the British Museum and the museum of the University of Pennsylvania which has over two hundred men at work excavating Ur of the Chaldees, Iraq, one of the most famous sites of antiquity.

In the shrine of the Moon goddess, worshipped by the ancient Chaldeans, there was found a diorite statue of the goddess, Bau, patroness of the poultry yard, and, in the report of C. Leonard Woolley, leader of the expedition, just received, it is declared that this is the only female statue of early date ever found in Mesopotamia. Only the goddess's nose is missing; other less fortunate statues and vessels had been smashed to bits upon the brick floor of the temple Gig-Par-Azag, when that place of worship was sacked and burned, probably during a rebellion against an ancient king of Babylon, the great Hammurabi.

During January the Moon goddess temple was laid bare by the excavators. This really magnificent structure was built about 2220 B. C. and then rebuilt in fine burnt brick a hundred and fifty years later by Enannatum, son of Ishme-Dagan, king of Isin. This is the most imposing building at Ur, with the single exception of the Ziggurat, covering a very large area and laid out on a bold and spacious plan. One of its two temples is that of Nin-Gal. It has a court with wide gateways on

three sides, brick-paved and thickly set with bases for statues or stelae, with water tanks and lustral stands, and it forms the central feature. From it three massive doorways lead to the sanctuary, a small chamber entirely taken up by a high statue-base with a flight of steps on one side of it. Altars in the gateway recesses and in the chamber next to the sanctuary seem to show that these served as side chapels for the cult of lesser gods. The court is flanked by long rooms, store or service chambers, and behind the sanctuary is the temple kitchen. Mr. Woolley reports that this ancient kitchen and all its furnishings are extremely well preserved. Near one wall is the well sunk through the brick floor. Made fast in the brick pavement is a bronze ring to which the bucket-rope was secured, and against the wall stands the bitumen-lined brick tank for water. Against the other walls there are two cooking-ranges, one with an open trough-fireplace for burning wood, a cup-fire for charcoal and a furnace whereon probably the great cauldron stood, the other an elaborate covered stove with two fireplaces, circular flues and top vents for the cooking pots and a flight of steps so that one might mount on the top of the stove to lift or shift them.

"On the floor we found the quern and grinder-stone and the clay vessels left lying when the last meal had been cooked," Mr. Woolley reports.

Another curious feature of the temple is a small chamber lying in the center of a maze of corridors symmetrical in plan. It had two doors at the southeast end of its longer sides and at the other end there was a tall stela of white limestone standing upright with two other stelae of dark gypsum lying side by side at its foot, embedded in the bitumen which here covered its brick floor. Each stone was inscribed with the name of Bur-Sin, King of Ur, and his dedication of the temple. "One can only suppose that this chamber was the shrine in which was celebrated the cult of the building's deified founder," Mr. Woolley reports. "Certainly it is unique in Mesopotamian discoveries."

But the worship of the Moon goddess, Nin-Gal, antedates even the foundations of the original building that Mr. Woolley and his assistants unearthed. In more ancient ruins offerings to the same goddess were found. One of these is a lunar disk in alabaster which bears on one face an inscription recording that it was dedicated by the High Priestess, the daughter of Sargon of Akkad who reigned about 2700 B. C., and on the other side a relief illustrating a sacrifice to the goddess in which the chief part is played by a priestess in flowing robes and mitre who can scarcely be other than the princess herself. And as if to show how conservative was Sumerian religion, we find the same scene reproduced on a limestone plaque which dates from well before 3000 B. C., a complete and admirable example of the earliest art of the country. There are two registers; in the lower a naked priest pours his libation before the door of the shrine, behind him is the High Priestess, robed and crowned, and behind her an attendant carrying a kid for the sacrifice and a second bearing a wreath; in the upper register a man, naked but with long hair, probably the king, pours libation before the seated Moon God, and three small draped figures, perhaps his children, look on from behind.

Some spiders catch fish.

MOVIE IDEALS SUBTLY GRIP AMERICAN PUBLIC

Movies do not cause crime in the direct way which is often assumed by those who believe that much of the youthful crime and delinquency of this country can be traced to direct imitation of crimes seen on the screen. The influence of the movies is more subtle than direct imitation, according to Prof. Ellsworth Faris, of the University of Chicago department of sociology.

Only a part of the influence of movies is of the "conscious" copying" type of imitation which is found in the spread of fashions. This method, Prof. Faris believes, rests ultimately on the ambitions of the imitator and on the admiration that beholds for the one imitated, rather than on an automatic instinct of imitation. Less tangible but of vastly more importance is the "slow, unconscious" type of imitation by which ideals, moral codes and purposes displayed on the screen become part of the ideals, moral codes and purposes of the beholder. The process of taking over these ideals is the same as that by which dialects or mannerisms or personal prejudices are acquired. People normally rehearse to themselves experiences they have been through and in this mental drama take not only the part they played but the parts played by other people in the experience. Through thus playing the role of another the attitudes and mannerisms of the other may be absorbed unconsciously. In witnessing a movie something of the same process occurs.

"The dramatic art," said Prof. Faris, "identifies the spectator with the principal character so that the wishes and ideals and purposes are shared by the beholder. The living for an hour in such a sympathy with a character does have an influence on the personality which may lead to unconscious imitation."

Moreover, he continued: "Vicious or lawless acts by any character may remain as suggestion possibilities for later critical situations and produce emotional and imitative behavior."

Thus a boy who sees gun play in the movies may not go out and immediately shoot someone, but later a critical situation may release a gun-shooting attitude previously acquired. This "imitation", if so it may be called, is similar to that which takes place in a mob; the mob situation does not create imitative ideas and acts but merely releases prejudices and ideas already held but previously latent.

There is danger in the inhibiting effect which seeing too many movies may have. Prof. Faris said:

"The happy ending, which means that all problems are solved for the hero, has a tendency to turn life into reverie and day dreaming and instead of being a spur to action may operate to paralyze and inhibit, since everything will probably come out all right in the end anyhow."

Eskimos are very fond of whale meat.

Sea water freezes at 28 degrees Fahrenheit.

CHINESE VERTICAL WRITING FOUND EASIEST READING

Chinese, eldest of languages, is commonly thought of as the most difficult. But this is an error, if the difficulty of a language is measured by the speed with which it may be read.

Prof. Walter R. Miles of the department of experimental psychology of Leland Stanford University and Eugene Shan, a graduate student, in a series of comprehensive tests have learned that Chinese may be read more rapidly than English, and that type set vertically is more efficient and causes less eye strain than type set as is this.

In arriving at these conclusions Dr. Miles made use of eleven Chinese students, all of whom were born in China and were brought up on "vertical newspapers"; that is, on Chinese print reading up and down. He photographed their eyes, measuring their movements and noting how long each rested on a single group of words and calculating from that their speed in reading the two classes of selections.

While the entire eye was illuminated and photographed it was the cornea, or white of the eye, that presented the opportunity for study. The cornea, being illuminated, changed its angle of reflection during each movement. The scientists found that the eye is never absolutely still, for when photographing a member fixed on a single spot, its edges left a hazy outline on the negative.

The selections read were in both English and Chinese, taken from a magazine article. The Chinese was set both horizontally and vertically for various experiments. It was found that at each reading pause the eye perceived a greater number of words of vertical type than of horizontal, while a greater number of vertical words were read each second than were horizontal words.

The vertical reading matter, which Dr. Miles found to be more efficient, if applied to newspaper and magazine columns in the United States would bring about this change: You would commence reading at the upper right hand corner of the column or page and read down, progressing by columns from right to left. Each succeeding letter of a word would be set beneath its predecessor rather than alongside. Punctuation marks to indicate pauses, sentences and paragraphs would be used as at present.

It has been a popular idea of long standing that horizontal reading matter may be perceived and understood with less strain to the eye, and, in fact, many Chinese papers have changed over to this style of type-setting during the last few years. But Dr. Miles' analysis of his investigations indicate this to be an erroneous impression. Investigations subsequent to those he has already reported upon bear out the earlier conclusions.

A young tree grows faster than an old tree.

NANSEN SAYS SUBMARINE MAP BIGGEST ARCTIC OBJECTIVE

The biggest geographical task awaiting voyagers to sail to the top of the world is to chart the depth of the Polar sea in all directions and to establish roughly the boundaries of the continental shelf. This is the opinion of Fridtjof Nansen, Norweigian scientist and arctic explorer, who outlines the remaining problem of the Polar region, in the April issue of the Forum.

The northernmost coast lines of the great continents, as they circle about the polar regions, have been located and surveys made. There may be islands, large or small, still waiting to be discovered in the Polar seas, but there is no likelihood that a great continuous mass of land has been overlooked by explorers, Dr. Nansen concludes.

What has not been done, he explains, is to map the northern fringes of the continents which are covered by comparatively shallow water. This under-sea land, known as the continental shelf, often extends far out beyond the visible coast and is a part of the continent itself. The edge of a continental shelf forms a cliff where the sea floor drops to the great ocean depths of several thousand feet.

"From the north of Siberia this continental shelf extends very far, for hundreds of miles," says Dr. Nansen. "Its surface, which is remarkably even, is not very far below sea-level, much of it being less than 150 feet down.

"It was over this remarkably shallow continental shelf that both the Jeanette (1879-81) and the Maud (1922-24) drifted along their two years' drift routes. Only at one place, namely north of the New Siberian Island. on the Fram's drift route in 1893, has the edge of this shelf been definitely located. At that place it was more than 300 miles north of the Siberian coast. At another point, about midway between the New Siberia Island and Cape Chelyuskin, the Russian expedition of 1913 took a sounding of 1,319 feet without reaching the bottom, and it seems probable that they were then at the edge of the shelf.

"North of Canada the continental shelf also extends for a great distance, but exactly how far is entirely unknown. North of Alaska, at Point Barrow and eastward, the edge of the shelf comes very near the coast."

The Norwegian expedition, of 1893-6, aboard the Fram discovered that there is a deep ocean basin, with depths ranging from 9,800 to 12,630 feet, in the regions near the North Pole, says Dr. Nansen. But how far the deep Polar sea extends and where it is broken by submarine ridges has not yet been investigated.

The importance of also studying the physical conditions of the Arctic wastes is emphasized by Dr. Nansen, who declares that "trying to discover the laws governing the circulation of our atmosphere without a knowledge of the polar regions and their physical conditions is comparable to the action of a man attempting to study the laws by which water circulates in the heating apparatus in a house, without knowing anything about the radiators that emit the heat."

It is generally recognized, he adds, that our weather is affected by meteorological conditions in the Arctic regions, and that observations of the different layers of the atmosphere, near the earth and at great heights, in different parts of the polar regions are of the greatest importance for understanding the laws which govern the weather.

Limitations of the airplane have been demonstrated by Amundsen's experiment, in the opinion of Nansen, but the airship he regards as much more promising. Given a large airship, capable of carrying a crew and equipment for investigations, he says, the most important geographical problems of the unknown north can be solved in the course of a few weeks.

INFLUENZA WAVE MAY BE RISING TO CREST

Are we on the verge of another influenza epidemic? Reports from such widely separated parts of the world as England, Mexico, and Russia may indicate the rising tide of a recurrent wave of influenza and pneumonia such as characterizes this little understood disease.

Vague rumors of a widespread outbreak of influenza in Russia, with hospitals in Moscow and Leningrad so full as to be obliged to turn away thousands of sufferers, have been current recently. The Russian Public Health Service in New York in a statement to Science Service now confirms these rumors, stating that personal correspondence from Moscow describes the suffering as intense. The Public Health Commissariat of Russia considers it the worst epidemic since the great pandemic of 1891.

Reports from the rest of Europe say that though influenza has been prevalent throughout the winter particularly in England, the crest is believed to have been reached about the beginning of the year. While precise information is lacking from Mexico, there is indication of outbreaks in both Mexico City and Hermosillo, capital of Sonora.

New York State has serious outbreaks in several upstate cities, with a record of 462 deaths from pneumonia and 76 from influenza for the week of March 7 in New York City alone, numbers that are larger than those reported for any corresponding week since the epidemic of 1918. Dr. Louis I. Harris, health commissioner of New York City says, however, that the situation is not alarming and that there is no epidemic.

Dr. Louis I. Dublin, statistician of the Metropolitan Life Insurance Company, in summing up the situation throughout the United States says, "From all indications, there is a very general outbreak of cases but these are of relatively short duration and not particularly dangerous to life." The Metropolitan figures indicate that the largest number of deaths from influenza and pneumonia during January and February have occurred in the southern and border states.

The first synthetic perfume was made in 1850.

European countries own over half of the tropics.

BOX HEDGES BEING DESTROYED BY PEST

Everyone who owns a box tree should look out for the boxwood leaf miner. If they do not it is likely to get such a hold on the box trees and hedges as to destroy their beauty almost entirely at the end of a few years.

The pest, which has an extensive range and is now spreading rapidly in the vicinity of Washington, is a small orange fly that emerges about the first of May. It alights on the underside of the box leaf and deposits its eggs in the inside of the leaf where the larvae hatch out and live, boring from within, so to speak, throughout the year until the following spring. The gradual destruction of the leaves not only detracts from the appearance of the shrub but saps its vitality so that it falls an easy prey to several other pests and parasites.

William Middleton of the U. S. Bureau of Entomology says if all the hedges and box trees that are infested, as well as those near them, were sprayed according to Department of Agriculture directions the pest could probably be stamped out in about three years. A mixture of nicotine sulphate with molasses and water is advocated, to be applied the last week in April, just before the miner emerges from the pupal state within the leaf. The sticky molasses acts as flypaper to entangle the insect's wings as it comes out and the nicotine acts as poison. The spraying should be repeated about five times at intervals of four or five days. The first of May is the normal time of emergence, but it may vary with weather conditions as the season is advanced or retarded.

Leaves that are attacked by this insect can be recognized by yellow or brown discolorations and by a mine or area of loose leaf skin on the underside of the leaf within which small yellow maggots or orange pupae are present.

BEGINNING OF SPRING

No matter what the weather was in the last few weeks, spring did not begin until March 21 at 4.02 Eastern Standard Time when the sun crossed the equator on its trip northward and entered the zodiacal sign of Aries, the ram. Then spring officially commenced.

Actually, the sun does not move among the stars, but they form the background against which we earth-dwellers see it, and so as the earth revolves around the sun in its orbit, the sun itself apparently moves among the constellations. To the ancients, who were astrologers more than astronomers, and used the study of the heavens to attempt to predict the future, the star groups among which the sun thus seemed to move had an influence on the people of the earth when it was in them.

Though now astrology is thoroughly discredited as a science, some of the ancient terms still survive, and so the sun is said to enter the sign of Aries when spring commences, as happened early in the morning of March 21. It was then in the same position as it was in the early times when it entered the constellation of Aries, but as a matter of fact it is in the constellation of Pisces, the fishes,

for the constellations of the zodiac, the narrow path in which the sun seems to move, are slowly changing their position, returning again to their old positions after an interval of 25,800 years.

BLUE VITRIOL USED FOR BURNS

Blue vitriol, whose most common use is to supply the poisonous element in many spray mixtures for fruit trees, is now employed medicinally to treat phosphorous burns.

Burns caused by phosphorous are very painful and slow to heal because the cellular elements of the tissues with which the phosphorous comes in contact are destroyed, followed by the formation of ulcers and sores. Experiments conducted at the Medical Research Laboratory at Edgewood Arsenal show that 1 to 3 per cent. of copper sulphate, otherwise known as blue vitriol, applied to a burn of this character will form a coating over the phosphorous ingrained in the tissues and render its removal easy. When the copper sulphate coated phosphorous has been removed the wound is washed out and treated as any other burn.

SUBSTITUTE FOR QUININE IS SOUGHT

The monopoly of the quinine market held by the Netherlands must be broken, say the health experts of the League of Nations. At present the most effective remedy against malaria is quinine made from the cinchona bark grown in the Dutch East Indies, which furnish nine-tenths of the world's supply. Cinchona bark from the other countries which supply the remaining tenth gives only 2 to 5 per cent. quinine while that from Java, the principal source, runs 5 to 7 per cent.

The production of quinine in the Netherlands possessions is in the hands of a syndicate which fixes the price on the Amsterdam market. A return of 36 per cent. is paid on the capital invested. There is an independent Japanese company but the competition that it affords is not for the present appreciable. Requests for the government to regulate the actions of the "quinine ring" have met with the reply that the quinine interests are merely safeguarding the legitimate rights of the industry.

The health officials of the League are concentrating their attention on the development of a suitable substitute for quinine. Cinchonine, a drug made from a combination of several cinchona barks from trees growing elsewhere than in the East Indies, is under consideration as such a substitute. If it is found that it can be made as efficient as quinine, an effort to break the monopoly will be made by encouraging the cultivation of cinchona trees in all parts of the world where they will grow.

TABLOID BOOK REVIEW

FRESH AIR AND VENTILATION. By C-E. A. Winslow. New York: E. P. Dutton and Company. 1926. $2.00

This compact work embodies the results of researches by Prof. Winslow during five years or more of activity as chairman of the New York State Commission on Ventilation. There is probably no region in the world where the acuteness of the problems are met by similar facilities for their study and solution more markedly than they are in New York. That the author has made good use of his opportunities his book will testify.

MATTER, MAN AND MIND. By W. F. F. Shearcroft. New York: The Macmillan Company. 1926. Packing the cosmos between boards, on two or three hundred pages of print, has become a thriving occupation lately, but most of the busy outliners of the universe annoy their audiences by bringing axes to grind or sermons to preach. The author of this book, being the fortunate possessor of a philosophical mind, avoids these offenses. He talks along discursively and comfortably, with bits of pat humor here and apt quotations from the poets there, and one gets his electrons and curved space, cave men and ether waves and new psychology, with a sort of feeling of having one's feet on the fender (fireplace, not automobile), with a jar of tobacco and a bowl of apples at one's elbow.

HYGIENE OF SEX. By Max von Gruber, M. D. Baltimore: Williams and Wilkins Co. $1.50.

Translated from a German book that has sold 300,000 copies. A frank explanation of physiological facts with hygiene and moral advice which on the whole is scientific and sensible.

There are said to be nearly 200 cases of leprosy in Paris.

At least 13 Arctic explorations are planned for this summer.

Making synthetic silk requires large amounts of chemicals.